

Claims

1. A force measuring device (3) having a housing (1, 2) consisting of a first housing part (1), which simultaneously represents a first spring means, and a second housing part (2) which are connected to each other and each of which has an associated first force introduction means (31) or, as the case may be, second force introduction means (33), wherein the two force introduction means (31, 33) are resiliently movable along a common movement axis (60) due to the action of an in each case opposite force (\vec{G} , $-\vec{G}$) directed in opposite directions, and having a deflection sensor (40, 50, 51) for registering this relative movement of the force introduction means (31, 33) with respect to one another, characterized in that the second housing part (2) represents a second spring means (2).
2. The force measuring device (3) as claimed in claim 1, characterized in that the housing parts (1, 2) have, as spring means (1, 2), spring constants (k_1 , k_2) whose values differ from one another by a maximum of 75%, but which preferably have the same values.
3. The force measuring device (3) as claimed in claim 1 or 2, characterized in that the first housing part (1) has a first spring lever (102) as first spring means (1) and the second housing part (2) has a second spring lever (202) as second spring means (2), which are disposed in each case outside the movement axis (60), preferably also vertically with respect to the movement axis (60).

4. The force measuring device (3) as claimed in one of the preceding claims, characterized in that the deflection sensor (40, 50, 51) is disposed along the movement axis (60).

5. The force measuring device (3) as claimed in one of the preceding claims, characterized in that the movement axis (60) both for the first housing part (1) and for the second housing part (2) and/or both for the first force introduction means (31) and for the second force introduction means (33) and/or for the deflection sensor (40, 50, 51) at least approximately forms a rotationally symmetrical axis (60).

6. The force measuring device (3) as claimed in one of the preceding claims, characterized in that the first housing part (1) is embodied in a single piece with the first force introduction means (31) and/or the second housing part (2) is embodied in a single piece with the second force introduction means (32).

7. The force measuring device (3) as claimed in one of the preceding claims, characterized in that a maximum possible deflection of the first and the second housing parts (1, 2) in each direction along the movement axis (60) is limited by means of stop elements (7, 8; 71, 72) which are mounted onto the housing (1, 2).

8. The force measuring device (3) as claimed in claim 7, characterized in that at least one internal stop element (7) is disposed inside the housing (1, 2).

9. The force measuring device (3) as claimed in claim 8, characterized in that the internal stop element (7) is embodied in a single piece with a housing part (1, 2).

10. The force measuring device (3) as claimed in one of the preceding claims, characterized in that the deflection sensor (40, 50, 51, 52) comprises a first deflection sensor half (40) which is rigidly connected, at least indirectly, to the first force introduction means (31) and, in addition, a second deflection sensor half (50, 51, 52), which is rigidly connected, at least indirectly, to the second force introduction means (32).

11. The force measuring device (3) as claimed in claim 10, characterized in that the deflection sensor (40, 50, 51) is an inductive sensor (40, 50, 51).

12. The force measuring device (3) as claimed in claim 11, characterized in that the first deflection sensor half comprises a core (50) of an induction coil and the second deflection sensor half has an associated coil winding (40).